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AUTHOR	Ramachandran, Hema; Toot, Louisa; Smith, Caroline
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ABSTRACT

This paper describes the development of a Web site, popular instructional sessions, expanded reference and research services, the addition of more databases, and collection development designed by the California Institute of Technology Library to support an Internet Business class and other business-related ventures on campus. The first section discusses the campus climate, including a campus-wide interest in business and entrepreneurship and a literature search on entrepreneurship education. The second section covers planning, including goal setting, and identifying the main components to work on. The third section addresses retooling in order to add business librarianship into the librarians' skill set, including learning the essentials of business research from texts and studying the Web sites of business schools and libraries. The fourth section describes Web site creation, including organizing the resources into logical categories and the inclusion of pathfinders called "Jumpstarts." The fifth section discusses the classes on business resources offered by Caltech librarians. (MES)

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ED 478 090

Developing E-Business Information Without a Business School

Hema Ramachandran, MLIS, California Institute of Technology
Louisa Toot, MLIS, California Institute of Technology
Caroline Smith, MLIS, California Institute of Technology

Looking back, it is interesting how a brief, tangential statement made at a June 2000 staff meeting has developed into an exciting new venture for three science and engineering librarians at the California Institute of Technology (Caltech). At that fateful meeting our humanities librarian casually mentioned that she had been in contact with a professor of mechanical engineering who wanted to know the location and breadth of the Caltech Library System's business collection. It seems he was in the process of designing a new course on Internet Business. Given that we are the engineering librarians who support his research and teaching, we wanted to pursue this information with him. We could have chosen to provide him with only basic reference support, but with the blessing of our manager we decided to match the entrepreneurial climate he was fostering on campus with some entrepreneurial ideas of our own.

These efforts of ours have resulted in the development of an extensive website (http://library/learning/bizresources.htm), popular instructional sessions, expanded reference and research services, the addition of more databases, and collection development designed to support not only the Internet Business class, but the other business-related ventures on campus as well. And all of this was accomplished without a business school and its attendant resources, or without any formal training as business librarians.

Campus Climate and Beyond

In the months prior to hearing about the Internet Business course, we had casually observed that there was a definite "buzz" on campus about start-up companies, business plans, and technology transfer. It was fashionable for our graduating students to start their own businesses, or at least to go to work in a start-up shop. Some Caltech students had begun their own companies before even finishing their degrees. The needs of these budding entrepreneurs were already being reflected in the Library's burgeoning instructional program with a successful class on Patent Searching taught by one of our librarians and an attorney from Caltech's Office of Technology Transfer.

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This campus-wide interest in business and entrepreneurship had sparked our own fleeting thoughts of offering an instructional session on business resources for engineers, but it was not clear to us how to fit this in to our conventional efforts to assist our disparate engineering groups. But hearing about the developing Internet Business class galvanized our interest and resolve. A quick e-mail from us and an immediate response from Professor Pickar resulted in a meeting to join forces in support of Internet Business at Caltech.

Our initial meeting was in essence a fact-finding mission as well as an opportunity to exchange information. Professor Pickar was in the throes of developing his syllabus for Internet Business, which was to debut fall term. Together we reviewed similar classes developed at MIT, Stanford, and UCLA—all of which are peer institutions of Caltech, and all of which have management/business schools. We were aware of a couple of related classes already offered on our campus, in particular, an ad-hoc course given in the Office of Technology Transfer, and a longstanding offering given by an emeritus faculty member who was filling the void to educate Caltech students on basic business skills and entrepreneurship.

From this initial meeting we also gained some important information about another entrepreneurial and business development on campus. Caltech had joined forces with the Art Center School of Design (Pasadena, CA) to write a proposal to the National Science Foundation to fund Entrepreneurial Post-Graduate Fellowships. This Entrepreneurial Fellowship Program (EFP) would support Caltech and Art Center graduates at all levels (bachelor, master, Ph.D.) and help jumpstart their entrepreneurial activities, effectively shortening the time between concept and actual business enterprise. As stated on the EFP website, "the goal of the EFP is to help entrepreneurs transition from their academic careers into the business world." In a previous version of this fellowship students were awarded funds for promising business plans, but it was soon realized that without extra support and guidance the awardees were not able to get their plans off the ground at a reasonable pace. With funding from the new proposal it was hoped that a yearlong fellowship would prove more beneficial for those involved. The EFP was designed "for students previously trained in science, engineering, or design to adapt their skills to the development of commercial products in a start-up environment." The proposal was successful and the first Entrepreneurial Fellows started the program in July 2001.

The interest and preoccupation with entrepreneurship that pervaded the Caltech campus was in no way unique, rather it was a reflection of the national scene. So in preparation for our work we conducted a brief literature search on the history and current status of entrepreneurship education. The articles we found reflected a wide range of entrepreneurship activities and education on campuses across the United States. American colleges and universities have a surprisingly longer legacy of entrepreneurship education than one would imagine, with the first courses offered forty years ago. Since those days the number of courses has continued to grow at a steady rate.

The majority of entrepreneurial courses offered are aimed at business students, while the concept of entrepreneurship education for engineering students remains not yet fully understood. An article by Standish-Kuon and Rice published this year helps to fill in the gaps and offers some very interesting insights into this particular aspect of the topic of entrepreneurship—the aspect that is of most interest to us and our endeavors at Caltech. This study examines how traditional science and engineering students are being taught entrepreneurship at six American universities. These institutions – Carnegie Mellon, Rensselaer Polytechnic Institute, Stanford University, UCLA, University of Colorado at Boulder, and University of Iowa – were chosen from the ten founding members of the National Consortium of Entrepreneurship Centers. Data was collected over a period of one year using a variety of techniques: site visits, review of internal documents, in-person and telephone interviews, and a follow-up survey. The study concluded that "five categories of actions define entrepreneurship:"

- Developing intellectual content, including scholarly research
- Gaining institutional acceptance
- Engaging students and alumni
- Building relationships with the business community
- Showcasing success

The first category was where we focused our interests and efforts as it is based on the assumption that entrepreneurship can be taught. Standish-Kuon and Rice state that "students can learn to recognize opportunities, to gather and deploy resources, and to create and harvest businesses. Further, entrepreneurship has a legitimate place in academic life as a subject of research." Libraries, librarians, and information resources have a major role to play in the process of learning the art of entrepreneurship and the gathering and deploying of resources, and we intended to do our part in this process.

Road-Mapping a Strategy

With our initial meeting with Professor Pickar and our early research efforts behind us, we began to panic as we realized the immense challenges we were facing! The Caltech Library System had neither a business librarian nor an extensive collection of business and management resources for us to work with. We were going to have to re-tool our professional skills and put together a body of materials that would support entrepreneurial scholarship and action. In order to put our panic at bay we knew that it was imperative that we map out a strategy for our role in this endeavor. Pickar's enthusiasm for our involvement in his Internet Business class was infectious, but it put us in danger of taking on more work than we could handle. We had to politely decline his offer to us to manage the class website and the website for the Caltech Entrepreneurs Club. Instead, we worked with him and offered a critique and suggestions for improving both websites, since this was an area in which we had experience and training.

We drew up a plan of action so that our goals were clear in our minds as to how the Caltech Library System and we would support the new program. We established the following goals:

- Develop and maintain a website of information resources to support reference and instruction in business resources
- Offer instructional sessions on business information—focusing in particular on E-Business and market research
- Survey, evaluate, and recommend new business databases
- Collection analysis

As we turned these preliminary goals into action they developed into three main components for us to work on:

1. An information audit to investigate what resources we had on campus and what we were lacking. We were looking to add items specifically relevant to the Internet Business class and materials that would be suitable for the EFP. This included adding titles recommended by Professor Pickar, and reviewing the book collection assembled for private use in Avery House (an undergraduate through faculty residence hall designed to house inventors and entrepreneurs in a stimulating, communal environment)
2. A website of business resources designed and maintained by the library
3. Instructional sessions on company & industry research, and business & market research

It is important to mention at this juncture that we had undertaken this project in addition to our respective duties as technical reference librarians for engineering and the sciences. Timing is everything, and this project came at a fortunate time for us. It was the beginning of summer, a traditionally slower-paced season on the Caltech campus. Even without a summer schedule full of pressing projects it still required us to spend evenings and weekends immersing ourselves in business research. It is clear now that there was no way that we could have achieved so much without devoting the additional time to this undertaking. Each of us brought different and complementary strengths to our tasks and to our brainstorming sessions. Plus we each supplied healthy doses of moral support.

The Retooling

In order to accomplish all that we intended we needed to do some serious retooling in order to add business librarianship into our skill set. The immediate question became, how do librarians with decades of combined experience in science and technology retool themselves for the ever-changing world of business information in a time period of less than three months?

Though it may sound grueling, retooling ourselves was perhaps the most fun part of this project for us. It was reminiscent of being back in library school as we learned of the information resources we would need, and worrying if we'd remember those resources once we were on the spot at the reference desk.

We started our retooling by asking ourselves who would have this information about how to do business research. It was a deceptively easy question, the answer being of course, business librarians. But since we didn't have access to a business librarian on our campus we turned instead to our trusty online catalog and searched for materials about business research. We managed to find *the* bible on this topic, Lavin's "Business Information: How to Find it, How to Use it," as well as two other texts on business research. Of the three titles the newest was published in 1992 and the oldest in 1975. We felt these provided a good basis for background information and we then turned our attention to materials on the Internet and e-commerce. Though the Internet really began to take off in 1994, and online businesses had heated up the economy over the past few years, we found next to nothing on this topic in our catalog. Still, this gave us a good grounding in the basics of essential business research. Thus our first act as newly attuned business librarians was to order a copy of Bates' "Super Searcher's Do Business."

The next thing we did was scour the web for business schools and business librarians' websites to see what links were included on their pages and which of those would prove useful for our purposes and our goals. Having ready access to so many other librarians' efforts and expertise really paid off for us. On the business school web pages we searched for course syllabi related to engineering and entrepreneurship and e-business to see what texts were being used and what we might want to add to our collection in support of the new Internet Business class. While this work proved fruitful when we could actually access a course syllabus, it is important to note that many course materials are IP or password restricted. Thus we also searched the Scout Report, the Librarian's Index to the Internet, and Yahoo!, among other directories and search engines, in order to find relevant, free, and authoritative resources. We had amassed a great deal of information, we had collected websites and other Internet resources, and what we had to do next was digest it all and turn it into a useful web page and a comprehensible class.

Website Creation

A useful web page meant a custom-made website to support bibliographic instruction and reference work for the forthcoming Internet Business class. Our intention was to create a one-stop shop for the best, most authoritative, mostly free resources available in business research combined with guidance on how to supplement a web search with existing library subscription databases such as First Search, INSPEC, etc. We intended to teach a one time instructional session on how to access business resources online and how to do business research. However, through collecting, evaluating, and learning all of these resources we decided that this website would not only serve the needs of Professor Pickar's E-106 Internet Business class, but it could also serve as a base for our other librarians, and the campus as a whole, to learn about business research.

We designed the site as a Yahoo!-style directory of business resources. To facilitate easy access to information we arranged the collected resources into logical categories. Our first broad category was devoted to resources on e-commerce, as this was the most topically relevant to the E-106 class. From there we prioritized according to relevancy to the class assignments.

Two years later the website has evolved into a jumping off point for all of our campus colleagues who are in need of business information, and not just e-business information. As we continue to widen our content scope to include all of the greater Caltech community, we modify our site and make changes as appropriate. We routinely check links and add new sites. Since its inception the website has changed to reflect resources as they move from free to fee and in and out of existence, and it has evolved into the basis for our instructional sessions.

One of the unique features of our website is our "Jumpstarts," which are in essence pathfinders. This was something that was created to support the Internet Business class, but we have retained them on our business resources website. Our three Jumpstarts cover Company Research, Industry Research, and Research Briefs. They have proven to be a very useful tool as they provide a simple strategy and framework for conducting business research. In the early stages of our work on this project, creating the Jumpstarts helped us to codify and solidify what we had learned. They have become an invaluable aide when it comes to teaching our students to conduct business research. The Jumpstarts are also useful to the independent student who wants to understand the arena of business research, but without the formality of classroom instruction.

Ultimately, designing and creating this website and its content was no small feat. It consumed the better part of our efforts that summer, but its debut that fall term went without any glitches. Professor Pickar and his students used our web site and Jumpstarts as core content for up-to-date information not easily accessible elsewhere.

Classes

Our first instructional session was held on October 5, 2000, just two and a half months after our initial meeting with Professor Pickar. Our website and our class were publicized only to the E-106 class that fall. The website and our names and e-mail addresses were linked from the online class syllabus. Our objectives for that class were to introduce the students to the organization of the website and to demonstrate how one might go about doing company and industry research using the resources assembled on the site. We wanted to show the iterative process of research in general, and of business research in particular. To do this we used one exemple from industry (closed-circuit TV) and one company (Peapod) and worked through the steps outlined in our Jumpstarts.

This supposed one-time class became the first in a continuing series of classes on business resources. After that first class we stepped back and analyzed what we did, what worked well, and what didn't. With each successive class we offer, we modify our presentation to fit the audience and tailor the scope of the class. In 2001 we taught five sessions on business resources for the general campus community. For one of these sessions we focused on market research as the theme. That we then turned into an invited session for a class where the students learned to write a business plan based on the information we shared with them. Another class we taught focused specifically on searching Nexis/Lexis Academic Universe for business and related information. Classes on business resources are now regular fixtures on the roster of instructional sessions offered by Caltech librarians. We have been invited to speak at a growing number of classes by request of our faculty.

Conclusions

This project has increased our visibility on campus, both for the Caltech Library System as an organization, and for us as individuals serving as information specialists. Segments of our campus that were not aware of us before, have become regular users of the library and have been publicizing our services to their colleagues. As the popularity and options increase for our business resource classes we have recruited our fellow campus librarians to join in our work. Our initial development efforts have resulted in a web resource that easily acquaints our colleagues with this material and trains them effectively enough so that they too can teach business resource classes. We now have an enthusiastic group of "next generation" Caltech science and engineering librarians who can bring business resources to our campus population, without the presence of a business school.

This case study of how we put our knowledge to work presents a strategic approach that can be applied in most organizations. Our work is increasingly interdisciplinary here at Caltech, and we believe that is a reflection of the national trend. The role of academic librarians is constantly shifting and changing, but this can create positive and unexpected results that lead to new ventures and enhanced visibility on campus.

References

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